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ABSTRACT

This paper deals with the relationship between education and the decline in economic growth in the United States. Through lower costs, newly developed technology, and foreign capital, third world countries have developed competitive industrial capacities which intensify competition in markets the United States once dominated. Several high tech areas in America that have lost their competitive position are mentioned: steel, automobiles, and textiles. The nation's educational system was one of the significant contributors to the economic success of the United States in the first half of the 20th century. Both quality of the work force and the ability to produce scientific and technological development are highly, perhaps totally, dependent on education, and particularly training in math and science. Edward Denison, of the Brookings Institution, is cited as one of the pioneers in the research to identify and estimate the role of education in United States economic growth. Learning is seen as not simply preparation for work, but as a permanent part of work and adulthood and key to growth of enterprises and the national economy. Educators and other public policymakers face a challenge to understand and react to the current economic conditions and the resulting impact on the public education system. Appended are 13 references. (SI)

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EDUCATION AND THE ECONOMY

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Virtual unanimity exist among business, government and education that the industrial and manufacturing segments of the United State economy are in serious trouble. More importantly, the nation cannot maintain its present level of prosperity without them. No nation can prosper in a purely service economy (Marshall,1986).

One of the obvious developments in the world economy since 1960 has been the emergence of highly competitive productive capacities in the third world countries. Many of the newly industrialized countries are now taking market shares away from nations who, historically, controlled heavy manufacturing, e.g., steel production, ship building, automobiles, and other consumer durable goods. Through lower labor costs, newly developed technology, and foreign capital, these countries have developed competitive industrial capacities. Gains in human resource development have clearly played an important part in these countries success in international product markets.

As these countries continue to intensify competition in markets which the United States has typically dominated; the question of how to adjust to newly required structural change assumes more urgency. To the extent that the United States is slow or unable to fully assimilate advanced technologies and apply them to their best advantage, or make the necessary

adjustments towards a more service-oriented information-based economy, will determine the nations ability to maintain a healthy economy (Devey and Miller, 1983). It appears inevitable that competition in traditional markets will further intensify to such a point that economic growth may be jeopardized if these adjustments are not made.

Economist disagree about economic trends and the direction the United States economy is taking. However, Ray Marshal has identified three correct assumptions about the American economy: The United States is the strongest nation in the world. The United States is not as good as it could be. The United States has lost it's competitive position in the world.

America has lost it's competitive position in seven of the high tech areas. In addition low skill and lower paying jobs continue to move off shore. As previously stated, the nation is no longer competitive in steel, in automobiles, or in textiles. Additionally, an expected annual economic growth of one percent has replaced that of 3 to 3.5 percent of past years. The United States productivity growth, which once led the world, now lags that of virtually every other industrial nation. Despite the fact of having lower cost labor, several countries have also passed the United States in absolute terms of production.

If this trend continues and if both lower and middle skilled jobs leave the United States, the overall economy will deteriorate (Tucker and Mandel). A large segment of the population will find that wages are dropping in real terms and many are not equipped to enter newly created jobs, or, worse, hold any jobs in the current economy.

Today's United States economic climate contrasts dramatically with the climate of the first half of the 20th century. During the past 87 years this nation enjoyed the highest standard of living and greatest economic prosperity of any nation in the world. The nation's educational system was one of the significant contributors to this success .

The education system was the newest and most flexible in the world during this period. It produced both the most productive work force and a group of people who led the world in technological development and innovation. However, virtually every element that gave rise to the prosperity has changed (Martel, 1986). One of the major developments is that productivity gains are no longer primarily attributable to new and better machines. The ratio of machine contribution to work force productivity has shifted dramatically to the latter. A general estimate is that today 75 percent of increased productivity results from a better qualified work force and the balance from scientific

development (Lund and Hasen, 1986). Both the quality of the work force and the ability to produce scientific and technological development are highly, perhaps totally, dependent on education, and particularly training in math and science (Kidd, 1980). Without a quality work force, possessing technology and capital can no longer guarantee a strong economy.

Whether addressing human skills, machine capability or organizational mode, American business can no longer compete effectively until it is capable of responding quickly and flexibly to changing markets. Almost every factor in the current situation conspires against this requirement. The narrow specialization of the education and training of the upper half of the work force encourages resistance to changes that would lower demand for employee specialty. The design of most machinery for mass production, must be amortized on long production runs; and the organization of the work place, where the work rules of organized labor and the vested interest and outdated practices of middle management make it very difficult to organize efficiently or flexibly. In addition, the poor education level of the lower half of the work force further inhibits the ability to compete in a world class economy. The large number of functional illiterates and the lack of basic education skills make training for

change requirements difficult and expensive in this segment of the work force.

Economist and educators now accept the significance of education in economic development, economic growth, and productivity growth (Jiminez, 1987). In all countries, at any stage of development, the share of resources allocated to education is an important factor in determining the rate and extent of economic development (Blaugh, 1985). Education may be the most significant factor in the rate of advance of scientific and technical knowledge; as well as, in the speed and effectiveness with which research and development [R and D] findings become diffused and adopted by the productive units that make up the economy. The quality and extent of the education effort is also reflected in the number of entrepreneurs per capita in the population and the society's ability to deal with disequilibrium.

Edward Denison, of Brookings Institution, was one of the pioneers in the research to identify and estimate the role of education in U.S. economic growth. Denison isolated the independent effects of the growth in the stocks of labor and capital, the changing demographic composition of labor force over time, economies of scale resulting from increased size of the real GNP, and the changing structure of the labor from low productivity sectors such as agriculture to higher value

added sectors in manufacturing. Based upon this research, the residual growth of the economy is claimed to be the result of advances in knowledge and of the general increase in the educational attainment level of the population. He estimated that approximately 20 percent of the real GNP growth between 1919 and 1957 was attributable to increased quantity and quality of education. Theodore Schultz, another pioneer in economic education, concurs with Denison's estimate, but with the proviso that it assumes all cost of education to be investment cost. However, failure to designate some cost as consumer goods expenditures would result in the estimate understating the true significance of education in economic growth and the competitive position of the economy.

Obviously, not all education contributes equally to economic growth. Some education is more consumptive than investment. Some investment-type education may be misdirected and, thus, may never be recovered in the form of differential earnings. However, it plays a crucial role in the economy. Education provides skilled manpower, facilitates economic growth, raises the general level of economic adaptability and increases the flexibility and hence the growth potential of the economy. In addition, it also reduces the structural losses implicit in sectorial

inabilities to adjust to economic displacement through relocation, retraining and job redesign (Rumberger, 1985). The United States requires a highly skilled and flexible work force. One that is fully capable of operating in organizational environments designed to take maximum advantage of their knowledge and expertise. A work force possessing the necessary attributes needed to apply the most advanced technologies available to every manufacturing, business and service industry in the nation.

The recent economic reversals affecting the United States have been linked to a shift in production inputs and outputs as they relate to productive economic activity and to job qualifications (Wozniak, 1987). Generally, these qualifications are rooted in the on going process of technological innovation. Specifically, they are related to the advances in interrelated technologies which in combination, are affecting or will affect all sectors of economic activity. As work changes, preparation for it is called into question. Moreover, in a period of "information explosions" and rapid change, learning is seen increasingly as not simply as preparation for work, but as a permanent part of work and adulthood, going far beyond the conventional institutional and time limits on place, method, content, and timing of past patterns of education and training.

The external economic forces impacting this nation have fostered a need to reconsider accepted assumptions about what constitutes a well-qualified labor force and what role education should play in developing such a labor force. Specifically, the pivotal role of human resources relative to other production factors to determine the competitiveness, economic performance and capacity for employment growth of enterprises and the national economy, must be addressed.

Educators and other public policy makers face a challenge to understand and react to the current economic conditions and the resulting impact on the public education system (National Governors' Association, 1986). These policy makers must determine how much of the respective current situation is an irrevocable shift of past pattern and how much could be brought back in to adjustment with minimal tuning. The results of their decisions will have lasting effects on this nation's future. If the deviations from economic employment growth and development are not major, this is correctable. However, if the movement is an irrevocable shift in new directions, fundamental changes in education as well as business and industry will be required to meet both the present and future challenges.

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